

Remarks

Claims 1-27 are currently pending in the Application, Claims 28-35 are newly presented herein and Claims 7-8, 14-15 and 24-25 are herein canceled without prejudice.

Allowable Claims

Applicant acknowledges with gratitude the Examiner's indication of allowability as to Claims 18 and 22.

Summary of claim amendments

This response amends Claims 1, 4, 9, 11, 19, 23 and 26 to clarify the language of the claims.

Claims 7-8, 14-15 and 24-25 have been canceled without prejudice.

New Claims

This response adds new claims 28-35 to more completely claim the invention. Support for the new Claims 28-35 can be found in the original Claims 17-18 and 22.

Specification amendments

This response amends paragraph at page 9, lines 5-9 of the specification as shown above. Support for the amendment can be, for example, found in Figure 1 and the associated text in the specification.

Drawing objections

The Examiner objects to the drawings for not showing some features recited in the pending claims. Applicant submits that the claims have been amended by deleting features allegedly not shown in the figures. Applicant respectfully requests that the objection be withdrawn.

35 U.S.C. §112, second paragraph, rejection

Claims 7, 11-15 and 23-27 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant submits that the claims have been amended and respectfully requests that the rejection be withdrawn.

35 U.S.C. §103(a) rejections

Claims 1-5, 7-8, 11-15 and 24-25 stand rejected under 35 U.S.C. §103(a) as being obvious in view of Da Silva (U.S. Patent No. 2005/0018724) and further in view of Heflinger (U.S. Patent No. 6,545,785) and Drentea (U.S. Patent No. 7,139,545). Claims 6, 9-10 and 23-27 stand rejected under 35 U.S.C. §103(a) as being obvious in view of Da Silva and further in view of Heflinger. Claims 16-17 and 19 stand rejected under 35 U.S.C. §103(a) as being obvious in view of Da Silva and further in view of Lida (U.S. Publ. No. 2002/0075539). Claims 20-21 stand rejected under 35 U.S.C. §103(a) as being obvious in view of Da Silva and further in view of Lida and Foltzer (U.S. Patent No. 6,487,329).

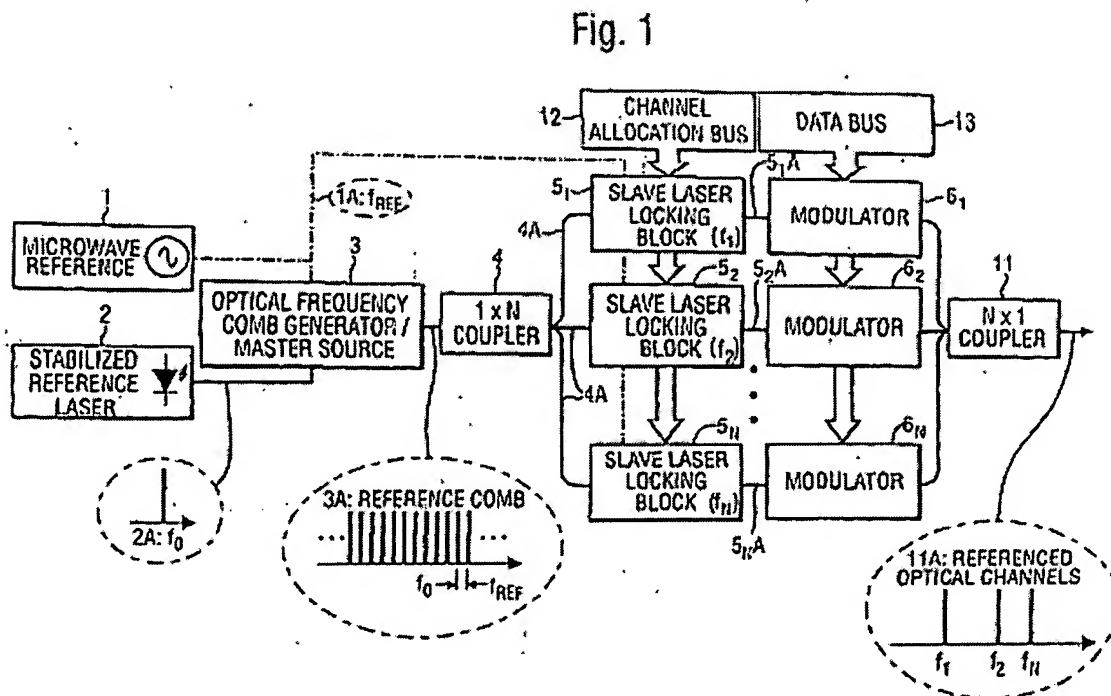
Applicant submits that the Examiner has not established a prima facie case of obviousness for the claims rejected under 35 U.S.C. §103(a) because the Examiner has failed to show that the cited references teach each and every element as claimed in the present application.

Claim 1

A. Applicant submits that the Examiner has not shown that Da Silva, Heflinger and Drentea disclose, suggest or teach, *inter alia*, the following features recited by Claim 1 of the present application:

“the data transmission portion being arranged in a **plurality of segments, each segment** ... including at least: (a) an array of lasers, with each laser in the array of lasers in each segment being injection locked to an optical tone in the comb generated by the optical comb generator” (emphasis added)

Referring to Da Silva's Figure 1, reproduced below, the Examiner asserts that, although Claim 1 recites a **plurality** of transmission "segments," at least one transmission "segment" and its "array of lasers" as recited in Claim 1 are allegedly disclosed by Da Silva's slave laser locking blocks 5_1 - 5_N and element 11 (p. 4, last paragraph of the Office Action).



Furthermore, although the Examiner concedes that Da Silva fails to disclose at least an additional transmitter "segment" as recited in Claim 1, the Examiner alleges that it would have been obvious to one skilled in the art to implement multiple transmitter sections in the transmission system as disclosed by Da Silva (p. 6, ll. 4-12 of the Office Action). According to the Examiner, "it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8" (p. 6, ll. 4-12 of the Office Action).

Applicant objects to the Examiner allegation that adding a "plurality of segments" as recited in Claim 1 to De Silva would have been obvious to one skilled in the art in view

of *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Applicant submits that in “*St. Regis Paper*, the Court of Appeal for the Seventh Circuit held that **redundancy** of layers to confer strength was obvious in the paper bag art” (emphasis added) (p. 14, ll. 1-3 of Ex parte Rodney A. Mattison enclosed herein for the Examiner’s ease of reference). In the Ex parte Rodney A. Mattison, the Examiner was of the opinion that additional comparators presented in Mattison’s claims comprise duplicate components and were obvious in view of *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 (p. 13, last paragraph of Ex parte Rodney A. Mattison). In their decision, the Appeal Board in the Ex parte Rodney A. Mattison reversed the Examiner’s rejection and found that it would not have been obvious to have multiple comparators because the comparators were **not redundant** as required by *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 because each comparator had a distinct input (p. 14, ll. 5-6 of Ex parte Rodney A. Mattison).

Applicant acknowledges that the opinion in the Ex parte Rodney A. Mattison is not binding precedent of the Board, however, it is being used herein to help the Examiner realize that *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 has been interpreted to apply in circumstances where the duplicate components are **redundant**, not just in any case where there are similar components.

According to the Webster’s New Explorer Encyclopedic Dictionary, the term “redundant” is defined as “serving as a duplicate for preventing failure of an entire system ... upon failure of a single component.” See the definition of the term “redundant” from Webster’s New Explorer Encyclopedic Dictionary enclosed herein. Contrary to *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8, the “plurality of segments” as recited in Claim 1 do not serve as duplicates for preventing failure of an entire system and each segment according to Claim 1 has a distinct input because the “array of lasers” in each segment according to Claim 1 is “injection locked to an optical tone in the comb generated by the optical comb generator.” Because the “plurality of segments” as recited in Claim 1 are not redundant and because De Silva does not teach, disclose or suggest a “plurality of segments” as conceded by the Examiner, Claim 1 is patentable over De Silva.

Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness for the claims rejected under 35 U.S.C. §103(a), because the “plurality of segments” as recited in Claim 1 are not redundant and because De Silva does not teach, disclose or suggest a “plurality of segments” as conceded by the Examiner. Therefore, Applicant respectfully requests that the rejection be withdrawn.

B. Applicant submits that the Examiner has not shown that Da Silva, Heflinger and Drentea disclose, suggest or teach, *inter alia*, the following features recited by Claim 1 of the present application:

“a data source providing data for modulating the light generated by a **majority but less than all of the lasers** in the array of lasers in each segment” (emphasis added)

Referring to Da Silva’s Figure 1, reproduced above, the Examiner asserts that the “array of lasers” as recited in Claim 1 is disclosed by Da Silva’s slave laser locking blocks 5₁-5_N (p. 4, last paragraph of the Office Action). Applicant respectfully traverses the Examiner’s assertion.

According to Da Silva, all the slave laser locking blocks 5₁-5_N are modulated by modulators 6₁-6_N. Contrary to Da Silva, only a “**majority but less than all of the lasers** in the array of lasers” (emphasis added) as recited in Claim 1 are being modulated, **not all** the lasers in the array of lasers.

The Examiner may be tempted to refer to Da Silva’s laser 2 to try to show that because it is not being modulated by the modulators 6₁-6_N it shows that only a majority of Da Silva’s lasers are being modulated. Applicant respectfully notes that Da Silva’s laser 2 does not disclose one of the lasers in the “array of lasers” as recited in Claim 1, because Da Silva’s laser 2 drives Da Silva’s optical frequency comb generator 3 (p. 3, paragraph [0036] of Da Silva), whereas “each laser in the array of lasers” according Claim 1 is

“injection locked to an optical tone in the comb **generated by** the optical comb generator” (emphasis added).

Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness for the claims rejected under 35 U.S.C. §103(a), because De Silva teaches that **all** of its slave laser locking blocks 5_1 - 5_N are modulated, not the **majority**. Therefore, Applicant respectfully requests that the rejection be withdrawn.

C. Applicant submits that the Examiner has not shown that Da Silva, Heflinger and Drentea disclose, suggest or teach, *inter alia*, the following features recited by Claim 1 of the present application:

“the data receiving portion being arranged in a **plurality of segments**, each segment of the data receiving portion including at least: (a) a photodetector for detecting demultiplexed modulated signals from at least one of the demultiplexers” (emphasis added)

Referring to Heflinger’s Figure 1, reproduced below, the Examiner asserts that, although Claim 1 recites a plurality of receiver “segments,” at least one receiver “segment” is allegedly disclosed by Heflinger’s element 8 (p. 6, last paragraph of the Office Action).

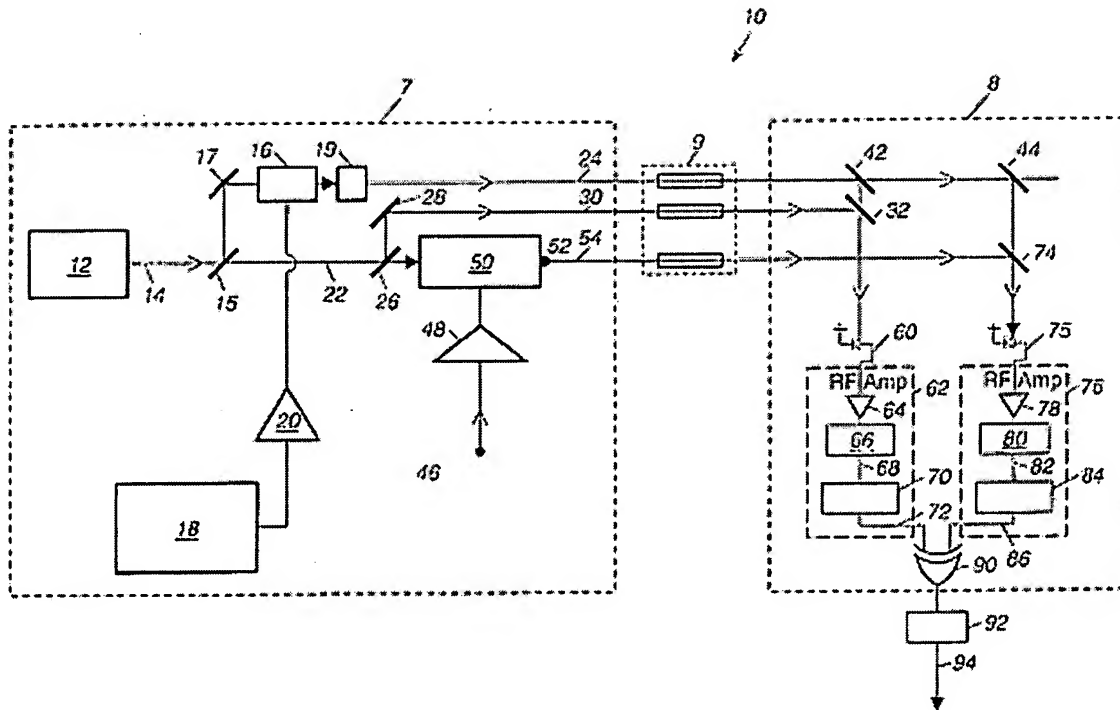


Figure 1

Although the Examiner concedes that Heflinger fails to disclose multiple receiver “segments” as recited in Claim 1, the Examiner once again alleges that it would have been obvious to one skilled in the art to implement multiple receiver sections in the transmission system as disclosed by Da Silva in view of Heflinger (p. 8, ll. 1-7 of the Office Action). According to the Examiner, “it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8” (p. 6, ll. 4-12 of the Office Action).

For the reasons stated above, Applicant submits that *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 has been interpreted to apply in circumstances where the duplicate components are **redundant**, not just in any case where there are similar components.

Because the “plurality of segments” of the data receiving portion as recited in Claim 1 are **not redundant** and because Heflinger does not teach, disclose or suggest multiple receiver “segments” as conceded by the Examiner, Claim 1 is patentable over De Silva and Heflinger.

Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness for the claims rejected under 35 U.S.C. §103(a), because the “plurality of segments” of the data receiving portion as recited in Claim 1 are not redundant and because De Silva does not teach, disclose or suggest multiple receiver “segments” as conceded by the Examiner. Therefore, Applicant respectfully requests that the rejection be withdrawn.

D. Applicant submits that the Examiner has not shown that Da Silva, Heflinger and Drentea disclose, suggest or teach, *inter alia*, the following features recited by Claim 1 of the present application:

“a photodetector for **detecting ... unmodulated signals** from at least another of the demultiplexers” (emphasis added)

Referring to Heflinger’s Figure 1, reproduced above, the Examiner asserts that the “photodetector for detecting ... unmodulated signals” as recited in Claim 1 is disclosed by Heflinger’s photodetector 60 (p. 6, last paragraph of the Office Action). Applicant respectfully traverses the Examiner’s assertion.

As shown above, **all** of Da Silva’s slave laser locking blocks 5_1 - 5_N are modulated by modulators 6_1 - 6_N . Therefore, even if it was somehow possible to have Heflinger’s element 8 receive data from Da Silva’s transmitter, how is Heflinger’s photodetector 60 supposed to detect unmodulated signals when all of Da Silva’s signals have been modulated by modulators 6_1 - 6_N ? Because Da Silva does not transmit unmodulated signals, Heflinger does not teach, disclose or suggest a “photodetector for detecting ... unmodulated signals” as recited in Claim 1

Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness for the claims rejected under 35 U.S.C. §103(a), because Heflinger does not receive unmodulated signals. Therefore, Applicant respectfully requests that the rejection be withdrawn.

Claims 2-5

Claims 2-5, at least based on their dependency on Claim 1, are also patentable over Da Silva and Heflinger.

Claims 7-8, 14-15 and 24-25

Claims 7-8, 14-15 and 24-25 have been canceled without prejudice.

Claim 11

Applicant submits that the Examiner has not shown that Da Silva, Heflinger and Drentea disclose, suggest or teach, *inter alia*, the following features recited by Claim 11 of the present application:

“at least one receiver segment, said at least one receiver segment and any **additional** receiver segments” (emphasis added)

Although the Examiner concedes that Heflinger fails to disclose multiple receiver segments, the Examiner once again alleges that it would have been obvious to one skilled in the art to implement multiple receiver sections in the transmission system as disclosed by Da Silva in view of Heflinger (p. 11, last paragraph of the Office Action). According to the Examiner, “it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8” (p. 11, last paragraph of the Office Action).

For the reasons stated above for Claim 1, Applicant once again submits that *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 has been interpreted to apply in circumstances where the duplicate components are **redundant**, not just in any case where there are similar components.

Because the “at least one receiver segment and any additional receiver segments” recited in Claim 11 are **not redundant** and because Heflinger does not teach, disclose or suggest

multiple receiver segments as conceded by the Examiner, Claim 11 is submitted to be patentable over De Silva and Heflinger.

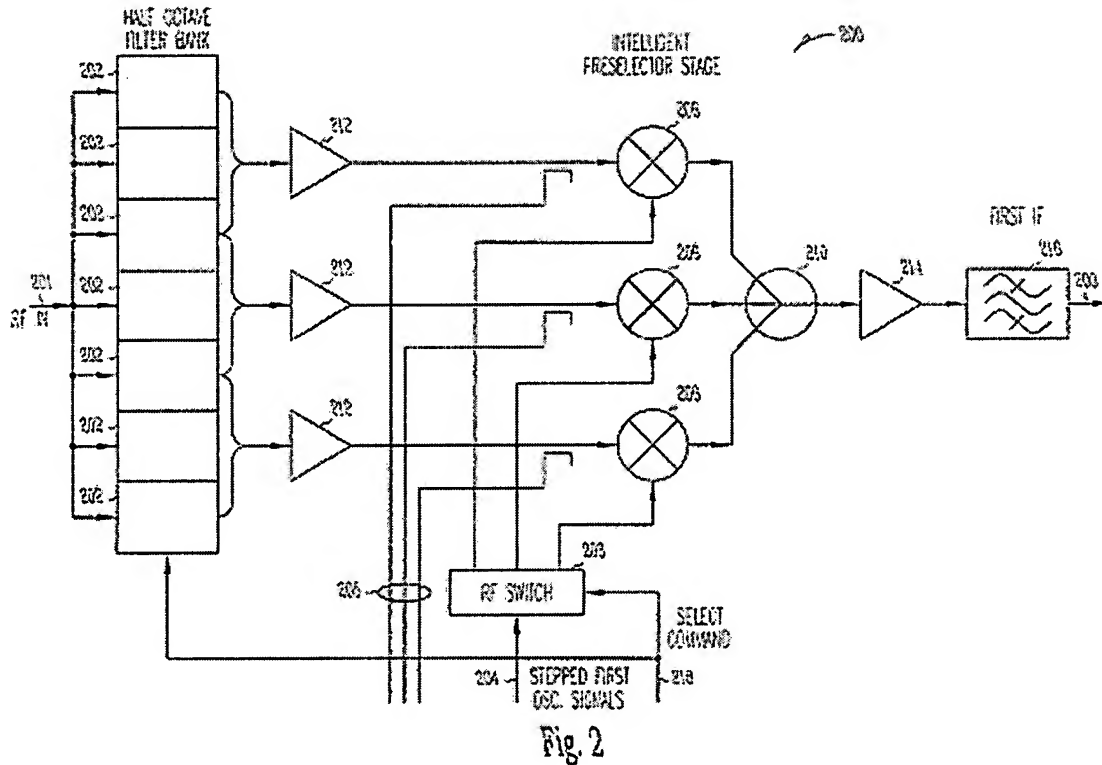
Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness for the claims rejected under 35 U.S.C. §103(a), because the “at least one receiver segment and any additional receiver segments” as recited in Claim 1 are not redundant and because De Silva does not teach, disclose or suggest multiple receiver segments as conceded by the Examiner. Therefore, Applicant respectfully requests that the rejection be withdrawn.

Claim 12

Applicant submits that the Examiner has not shown that Da Silva, Heflinger and Drentea disclose, suggest or teach, *inter alia*, the following features recited by Claim 12 of the present application:

“an array of **switches for ... enabling the filters**” (emphasis added)

Referring to Drentea’s Figure 2, reproduced below, the Examiner asserts that the “array of switches” as recited in Claim 12 are allegedly disclosed by Drentea’s switch element 208 (p. 11, ll. 3-4 of the Office Action). The Examiner also asserts that the “filters” as recited in Claim 12 are allegedly disclosed by Drentea’s filter elements 202 (p. 11, ll. 1-3 of the Office Action). Applicant respectfully disagrees with the Examiner’s assertions.



According to Drentea, the filter elements 202 are enabled by a select command 218 (c. 5, ll. 40-41 of Drentea), not by the switch element 208. How can Drentea teach, disclose or suggest “an array of switches for ... enabling the filters” as recited in Claim 12, when Drentea’s switch element 208 does not enable the filter elements 202?

Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness for the claims rejected under 35 U.S.C. §103(a), because Drentea’s switch element 208 does not enable the filter elements 202. Therefore, Applicant respectfully requests that the rejection be withdrawn.

Claim 12

Claim 12, at least based on its dependency on Claim 11, is also patentable over Da Silva, Heflinger and Drentea.

Claim 6

A. Applicant submits that the Examiner has not shown that Da Silva, Heflinger and Drentea disclose, suggest or teach, *inter alia*, the following features recited by Claim 6 of the present application:

“at least one transmitter segment and any **additional** transmitter segments including at least: (i) an array of lasers, with each laser in the array of lasers in each segment being injection locked to an optical tone in the comb generated by the optical comb generator” (emphasis added)

Although the Examiner concedes that Da Silva and Heflinger fail to disclose an additional transmitter segment, the Examiner again alleges that it would have been obvious to one skilled in the art to implement multiple receiver sections in the transmission system as disclosed by Da Silva in view of Heflinger (p. 14, last paragraph of the Office Action). According to the Examiner, “it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8” (p. 15, ll. 1-2 of the Office Action).

For the reasons stated above for Claim 1, Applicant once again submits that *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 has been interpreted to apply in circumstances where the duplicate components are **redundant**, not just in any case where there are similar components.

Because the “at least one receiver segment and any additional receiver segments” recited in Claim 6 are **not redundant** and because Da Silva and Heflinger do not teach, disclose or suggest an additional transmitter segment as conceded by the Examiner, Claim 6 is patentable over De Silva and Heflinger.

Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness for the claims rejected under 35 U.S.C. §103(a), because the “at least one receiver segment and any additional receiver segments” as recited in Claim 6 are not redundant and because De Silva and Heflinger do not teach, disclose or suggest an

additional transmitter segment as conceded by the Examiner. Therefore, Applicant respectfully requests that the rejection be withdrawn.

B. Applicant submits that the Examiner has not shown that Da Silva, Heflinger and Drentea disclose, suggest or teach, *inter alia*, the following features recited by Claim 6 of the present application:

“data source providing data for modulating the light generated by a **majority but less than all** of the lasers in the array of lasers in each segment” (emphasis added)

Referring to Da Silva’s Figure 1, reproduced above, the Examiner asserts that the “array of lasers” as recited in Claim 1 is disclosed by Da Silva’s slave laser locking blocks 5₁-5_N (p. 13, last paragraph of the Office Action). Applicant respectfully traverses the Examiner’s assertion.

As stated above, according to Da Silva, all the slave laser locking blocks 5₁-5_N are modulated by modulators 6₁-6_N. Contrary to Da Silva, only a “**majority but less than all** of the laser in the array of lasers” (emphasis added) as recited in Claim 6 are being modulated, **not all** the lasers in the array of lasers.

Once again, the Examiner may be tempted to refer to Da Silva’s laser 2 to try to show that because it is not being modulated by the modulators 6₁-6_N it shows that only a majority of Da Silva’s lasers are being modulated. Applicant again respectfully notes that Da Silva’s laser 2 does not disclose one of the lasers in the “array of lasers” as recited in Claim 6, because Da Silva’s laser 2 drives Da Silva’s optical frequency comb generator 3 (p. 3, paragraph [0036] of Da Silva), whereas “each laser in the array of lasers” according Claim 6 is “injection locked to an optical tone in the comb **generated by** the optical comb generator” (emphasis added).

Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness for the claims rejected under 35 U.S.C. §103(a), because De Silva teaches

that **all** of its slave laser locking blocks 5_1 - 5_N are modulated, not the **majority** as recited in Claim 6. Therefore, Applicant respectfully requests that the rejection be withdrawn.

Claims 9-10

Claims 9-10, at least based on its dependency on Claim 6, are also submitted to be patentable over Da Silva and Heflinger.

Claim 23

Applicant submit that, at least for the reasons stated above for Claims 1 and 6, Da Silva and Heflinger do not teach, disclose or suggest “said at least one transmitter segment and any **additional** transmitter segments including at least: (i) an array of lasers, with each laser in the array of lasers in said at least one segment being injection locked to an optical tone in the comb generated by the optical comb generator; (ii) a data source providing data for modulating the light generated by at least a **majority but less than all** of the lasers in the array of lasers in each segment” (emphasis added) as recited in Claim 23. Hence, Claim 23 is submitted to be patentable over Da Silva and Heflinger and the rejection should be withdrawn.

Claims 26-27

Claims 26-27, at least based on their dependency on Claim 23, are also patentable over Da Silva and Heflinger.

Claim 16

Applicant submits that the Examiner has not shown that Da Silva and Lida disclose, suggest or teach, *inter alia*, the following features recited by Claim 16 of the present application:

“frequency shifting at least one optical tone in the optical comb by a frequency less than Δf to produce a frequency shifted **unmodulated optical reference tone**” (emphasis added)

Applicant submits that in order to produce “a frequency shifted unmodulated optical reference tone” as recited in Claim 16, the “at least one optical tone” of Claim 16 that is frequency shifted has to be unmodulated. Contrary to Claim 16, as stated above, Da Silva’s slave laser locking blocks 5_1 - 5_N are **all** modulated by modulators 6_1 - 6_N . Referring to Da Silva Figure 1, reproduced above, the Examiner even concedes that the output optical tones f_1 , f_2 , and f_N are **modulated** tones (p. 17, last paragraph, ll. 6-7 of the Office Action). Because Da Silva’s output tones f_1 , f_2 , and f_N are modulated, where is an **unmodulated** optical tone that produces a “shifted **unmodulated** optical reference tone” (emphasis added) when it is frequency shifted as recited in Claim 16?

Applicant submits that the Examiner failed to comply with 37 C.F.R. §1.104(c)(2) which states:

“In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes invention other than that claimed by Applicant, **the particular part relied on must be designated as nearly as practicable**. The pertinence, if not apparent, must be clearly explained and each rejected claim specified” (emphases added).

Applicant submits that the Examiner has failed to “designate as nearly as practicable” where Da Silva discloses the “shifted **unmodulated** optical reference tone”(emphasis added) as recited in Claim 16. Applicant respectfully request that the Examiner comply with 37 C.F.R. §1.104(c)(2) or withdraw the rejection.

Claims 17 and 19

Claims 17 and 19, at least based on their dependency on Claim 16, are also submitted to be patentable over Da Silva and Lida.

Claims 17 and 19-21

Claims 17 and 19, at least based on their dependency on Claim 16, are also submitted to be patentable over Da Silva and Lida.

Conclusion


In view of the above, reconsideration and allowance of all the claims are respectfully solicited.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136 (a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

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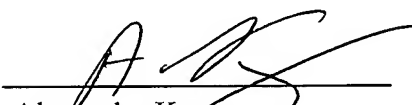
August 27, 2007
(Date of Deposit)

Stefanie Pallan
(Name of Person Signing)


(Signature)

August 27, 2007
(Date)

Respectfully submitted,


Alexander Krayner

Attorney for Applicant
Reg. No. 60,854
LADAS & PARRY LLP
5670 Wilshire Boulevard, Suite 2100
Los Angeles, California 90036
(323) 934-2300

Encls:

Fee for the excess claims;

Fee for extension of time;

A copy of Ex parte Rodney A. Mattison;

Definition of the term "redundant" from
Webster's New Explorer Encyclopedic

Dictionary;

Postcard.

Webster's New Explorer Encyclopedic Dictionary

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent

Applicant: Kayvan Sayyah)
Application No: 10/773,945)
Filed: 02/06/2004)
For: "Ultra-Dense Wavelength)
And Subcarrier")
Group Art No.: 2613
Examiner: Malkowski, Kenneth J
Our Ref: B-4524NP 621537-8
Date: August 27, 2007

FEES FOR EXCESS CLAIMS

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
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Sir:

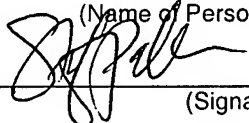
1. This is a paper showing the calculation of excess claim fees.
2. Applicant is a **large** entity.
3. A response is filed concurrently with this paper.
4. Attached is a check in the sum of **\$250.00**. Charge to Deposit Account 12-0415 any additional fee required or credit for any excess paid.
5. The fees are calculated as follows.

CLAIMS	CURRENT NUMBER	HIGHESTNUMBER PREVIOUSLY PAID FOR	NUMBER EXTRA	RATE	AMOUNT
Total	29	27	= 2	2 x \$ 50.00	\$ 100.00
Independent	6	6	= 0	0 x	\$ 0.00
				TOTAL	\$ 100.00

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August 27, 2007
(Date of Transmission)

Stefanie Pallan
(Name of Person Transmitting)


(Signature)

August 27, 2007
(Date)

Respectfully submitted,


Alexander Krayner
Attorney for the Applicant
Reg. No. 60,854
LADAS & PARRY
5670 Wilshire Boulevard, Suite 2100
Los Angeles, California 90036
(323) 934-2300 voice
(323) 934-0202 facsimile

Appeal No. 95-2218
Application 07/902,073

one-half cell delay, an anticipator, a variable bit cell delay, a one-third cell delay and a delayed read data single shot (DRDSS). (Paper 1 at 3, emphasis added.)

6. The window pulse generating means may comprise "a phase-locked loop synchronized with said DRDSS-delayed data pulse". (Claim 16, which depends from claim 12.) The disclosed window generator "may comprise the phase locked loop included in data separator 20". (Paper 1 at 28.) "The phase locked loop is shown as a conventional PLL comprised of [voltage-controlled oscillator] VCO 30, a frequency divider 32, a comparator 34, a charge pump 38 and a filter 40, all interconnected in a loop." (Paper 1 at 12.) "Microprocessor 42 is coupled to VCO 30 and is adapted to supply a zone identifying signal to the VCO which acts as a 'course' control." (Paper 1 at 13.)

B. The rejection

7. The examiner has rejected (Paper 9 at 3) claims 12-17 under 35 U.S.C. § 103 in view of:

Pederson	5,109,304	28 Apr. 1992
Fischler et al. (Fischler)	4,894,734	16 Jan. 1990

8. Claim 17 also stands rejected (Paper 9 at 6) under 35 U.S.C. § 103 in view of Pederson, Fischler, and

Tanaka et al. (Tanaka)	5,142,420	25 Aug. 1992 (filed 23 Apr. 1990)
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Appeal No. 95-2218
Application 07/902,073

claims 13 and 14 and enter a new ground of rejection for the remaining claims.

2. Appellant filed the subject application on 22 June 1992. He claims no priority under 35 U.S.C. §§ 119 or 120.

3. The subject matter of the invention is a delayed read data single shot (DRDSS) circuit for delaying a data signal read from different zones on a zone-bit-recorded (ZBR) data storage device. (Paper 1 at 1.)

4. Claim 12, the only independent claim on appeal, sets forth the subject matter of the invention as follows:

Window margining apparatus for detecting the occurrence of a data pulse reproduced from a zone bit recorded data storage device within a window duration, comprising:

a delayed read data single shot (DRDSS) circuit for delaying by an adjustable amount the data pulse reproduced from said data storage device to produce a DRDSS-delayed data pulse, the amount of delay being determined by the zone from which said data pulse is reproduced;

variable delay means coupled in common with said DRDSS circuit for delaying said data pulse reproduced from said data storage device;

window pulse generating means coupled to said DRDSS circuit for generating a window pulse of predetermined duration in response to the DRDSS-delayed data pulse; and

detecting means coupled to said window pulse generating means and to said variable delay means for detecting if the data pulse delayed by said variable delay means occurs within said window pulse.

5. According to the disclosure, "the delay circuit . . . has been described by those of ordinary skill in the art as a



THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

This opinion (1) was not written for publication and (2) is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RODNEY A. MATTISON

Appeal No. 95-2218
Application 07/902,073

ON BRIEF

Before THOMAS, HAIRSTON, and TORCZON, Administrative Patent Judges.

TORCZON, Administrative Patent Judge.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

FINDINGS OF FACT

We have reviewed the record in its entirety in light of the arguments of Appellant and the examiner. Our decision presumes familiarity with the entire record. A preponderance of the evidence of record supports each of the following fact findings.

A. The nature of the case

1. This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 12-17. (Paper 13.) Appellant has canceled claims 1-11 and 18. (Paper 8 at 2.) The examiner has allowed claims 19-29. (Paper 9 at 1.) We reverse the rejection of

9. The Pederson reference teaches a window margining method and apparatus for detecting defects on a hard disk. (1:7-14.) Pederson lists many compelling reasons why a hard disk designer would want a window margining defect detection system. (1:15-3:34.) Pederson does not teach zone bit recording or the circuitry needed for it, but none of Pederson's reasons for having error-detection circuitry are unique to Pederson's disclosed constant bit rate recorded hard disk system.

10. For the purposes of appeal, Appellant has conceded that "Pederson's variable delay 22, window generator 26 and error detector 32 . . . correspond[] to Appellant's claimed 'variable delay means,' 'window pulse generating means' and 'detecting means[]'", respectively. (Paper 14 at 9.) Appellant further concedes that "Pederson's error detector 32 corresponds to the claimed 'first comparator means[]'". (Paper 14 at 27.) The examiner concedes that "Pederson does not have an element similar to the DRDSS circuit." (Paper 9 at 4.) We find these concessions to be consistent with the record.

11. Pederson's variable delay circuit 22 and window generator 26 are coupled in common to the CLOCK signal. (7:37-8:15; Fig. 2.) Pederson's error detector 32 is coupled to the window generator 32 and (via multiplexer 28) to the variable delay 22. (7:29-65; Fig. 2.) The window generator 26 includes a

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phase-locked loop (PLL) synchronized with the clock signal.

(7:37-46.)

12. Pederson does not teach three separate comparators comparing the output of the variable-delayed data pulse and the window pulse, the DRDSS-delayed data pulse and the window pulse, and the outputs of the preceding comparators, respectively, as set forth in claim 13.

13. The Fischler reference teaches a method and apparatus for constant density recording of zones on a hard disk drive. (2:12-29.) Fischler teaches that constant-density recording has the advantage of maximizing disk storage capacity. (1:23-41.) Fischler's zone-based constant-density recording system is disclosed to be a good compromise of access time, cost, size, reliability, and storage capacity. (1:42-2:29.)

14. Appellant concedes that a hard drive using Fischler's constant density recording is the same as the claimed "zone bit recorded data storage device". (Paper 14 at 9.) Appellant further concedes for the purposes of appeal "that Fischler's anticipator [62] corresponds to Appellant's DRDSS circuit." (Paper 14 at 10.) We find these concessions to be consistent with the record.¹

¹ Appellant's disclosure could be read to discourage the use of Fischler's anticipator because, among other things, it
(continued...)

15. Fischler discloses (9:11-10:14) a variable frequency oscillator (VFO) 12 that "is used to establish a decode window to separate the data from the read channel." (9:45-46.) The VFO includes an anticipator 62 (9:11-13) and a voltage control oscillator (VCO) 65 (9:35-37; Fig. 3). The VFO is a PLL (9:59-60), the phase of which is controlled by the anticipator (9:49-53).

16. Fischler's PLL (Fig. 3) appears to be structurally equivalent to the "conventional" PLL that comprises Appellant's window generator. Fischler's PLL has a VCO 65, a frequency divider 68, a comparator (dual-mode phase-frequency detector 63), a charge pump 64, and a filter 77, connected in a loop. (Fig. 3.) The output of filter 77 is the fine control signal. (9:28-30.) The comparator also receives a reference signal FREF (via anticipator 62) from a reference oscillator (VCO 86) except during read operations. (8:61-9:19.) Fischler provides coarse

¹(...continued)
takes up too much "real estate". (Paper 1 at 4-5.) Nevertheless, Appellant has not drafted his claim so as to exclude Fischler's anticipator. In re Morris, __ F.3d __, __, 43 USPQ2d 1753, 1759 (Fed. Cir. 1997) (Applicants bear the burden of precisely claiming their inventions.). For instance, Appellant did not use means-plus-function language to claim the DRDSS circuit. Cf. Greenberg v. Ethicon Endo-Surgery Inc., 91 F.3d 1580, 1584, 39 USPQ2d 1783, 1786 (Fed. Cir. 1996). Moreover, Appellant has conceded the equivalence of Fischler's anticipator to the claimed DRDSS circuit for the purposes of appeal.

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control signal 80 based on zone control signal 18 via digital-to-analog converter 67, which is coupled to the VCO 65. (9:30-34.)

17. Although Appellant characterizes the VFO description as "less than clear" (Paper 14 at 10), we presume Fischler's disclosure to be adequate for the purposes of an obviousness rejection absent evidence to the contrary. In re Epstein, 32 F.3d 1559, 1568-69, 31 USPQ2d 1817, 1823-24 (Fed. Cir. 1994). Appellant has not offered evidence that Fischler's disclosure is not enabling.

18. Fischler does not disclose a window-margining defect-detection apparatus or method. One consequence of this is that Fischler does not teach three comparators in a defect-detecting means.

19. The Tanaka reference, Appellant argues, adds nothing to the teachings of Fischler. (Paper 14 at 6 n.3.) The examiner's answer neither responds to this point nor offers any further discussion of Tanaka. Since we do not see any basis for relying on Tanaka beyond the teaching of a VCO, which is already taught in Fischler, we find Tanaka to be cumulative to Fischler for the purposes of rejecting claim 17.

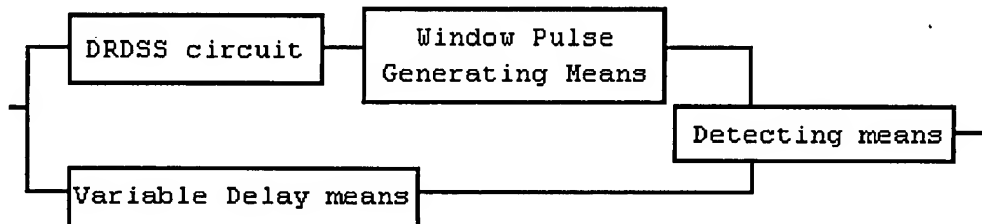
20. We rely on the references to show the level of skill in the art. In re GPAC, 57 F.3d 1573, 1579, 35 USPQ2d 1116, 1121 (Fed. Cir. 1995).

21. Appellant has not presented objective evidence of secondary considerations for us to review. Cf. In re Geisler, 116 F.3d 1465, 1470, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997) (Such evidence should be in the specification or other evidentiary submission.).

CONCLUSIONS OF LAW

A. Claim interpretation

1. During examination, we must give claims their broadest reasonable interpretation since Applicants are in the position to amend their claims to avoid problems. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). Applicants are obliged to claim precisely. Morris, F.3d at ___, 43 USPQ2d at 1759. When appellants concede for the purposes of appeal that an elements in their claims cover prior art structures, we must take such concessions at face value unless the concessions are manifestly unreasonable. Stripped to its essentials, claim 12 (as argued) requires the following elements arranged as shown and no more:



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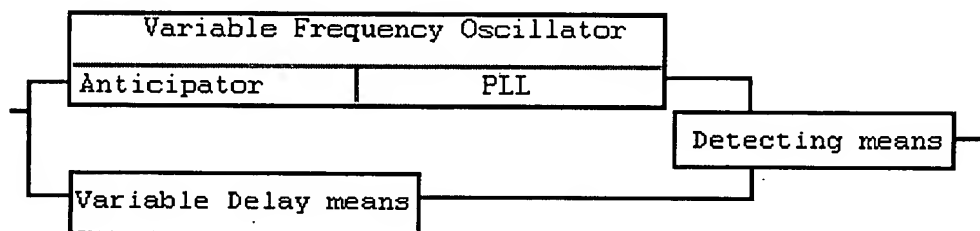
B. Claims 12 and 15-17 are obvious

2. We agree with Appellant's complaint that the examiner's combination of Pederson and Fischler appears to be the product of hindsight. (Paper 14 at, e.g., 15.) The examiner looks to Fischler to supply an element missing from Pederson in order to meet the claimed invention. (Paper 9 at 4-5.) While it is true that hindsight is necessary to the extent of narrowing the focus of the examination to the claimed subject matter, the motivation to combine must make sense in terms of the prior art per se without reference to the claims. In re McLaughlin, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971). Although the examiner was generally on the right track, we conclude that his rationale was unacceptably based on hindsight.

3. We, nevertheless, conclude that the subject matter of claims 12 and 15-17 would have been obvious in light of Pederson and Fischler. The Fischler reference would have motivated a person having ordinary skill in the art to use a zone bit recorded (ZBR) hard disk system like Fischler's for the reasons (access time, data density, cost, reliability, size) Fischler discloses. Findings 13 and 14, supra. The same person would also have been motivated to provide hard disk diagnostic circuitry for a ZBR system for the same reasons (many sources of defects that can occur after the disk is in use) Pederson

discloses. Finding 9, supra. Thus, on reading Fischler and Pederson, a person having ordinary skill in the art would have had very strong motivation to combine the teachings of these references.

4. Fischler's disk drive needs the VFO to implement his ZBR system. The VFO is an anticipator-synchronized phase-locked loop. Finding 15, supra. Fischler's VFO is the ZBR analog of Pederson's window generator, which is a clock-synchronized phase-locked loop. Finding 11, supra. The person having ordinary skill in the art would not have needed Pederson's window generator to implement Pederson's diagnostic system in Fischler's disk drive because Fischler has its own window generator, the VFO. Consequently, the person having ordinary skill in the art would have been motivated to build the following diagnostic circuit using the VFO:



5. The variable delay means and anticipator would be coupled in common to the same input because Pederson's detecting means compares signals from the same source. The VFO in a ZBR system uses the read data signal, not a clock signal, so the

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variable delay would have to use the same signal. The detecting means would also be coupled with the VFO and the variable delay means. The PLL in Fischler's VFO corresponds to the "conventional" PLL that comprises Appellant's window generator. Moreover, Fischler's PLL is coupled in series, and synchronized, with the anticipator 62, which Appellant has conceded corresponds to the claimed DRDSS circuit. Consequently, we conclude that the combination of Pederson and Fischler, in the manner that the references suggest, would meet the limitations in claim 12.

6. The phase shifting set forth in claim 15, which depends from claim 12, is precisely corresponds to the phase shifting caused by Pederson's variable delay circuit 22. (7:29-8:2.) Consequently, we conclude that this function of the claimed variable delay means does not distinguish the subject matter of claim 15 from the proposed combination of Fischler and Pederson.

7. Claim 16, which depends from claim 12, requires the window pulse generating means to comprise a PLL synchronized with the DRDSS circuit. As we noted above, Fischler's VFO comprises a PLL synchronized with an anticipator that corresponds to the claimed DRDSS circuit. Consequently, this limitation does not distinguish the subject matter of claim 16 from the proposed combination of Fischler and Pederson.

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8. Claim 17, which depends from claim 16, requires the PLL to include a variable oscillator generating a signal based on the zone from which data is being read (course control) and the phase difference between the signal and the DRDSS pulse (fine control). Appellant states in the specification that the operation of the PLL shown in Figure 3 is known to those having ordinary skill in the art. (Paper 1 at 14.) Consequently, we cannot conclude that this limitation distinguishes the subject matter in claim 17 from the proposed combination of Fischler and Pederson. In any case, we have already found fine control in Fischler's PLL to be equivalent. Finding 7?, supra. Claim 17 does not specify a source for the zone-based signal, so the fact that Fischler's signal comes via a digital-to-analog converter 67 instead of a microprocessor as Appellant discloses is not relevant.

9. Although we have concluded that the subject matter of claims 12 and 15-17 would have been obvious to a person having ordinary skill in the art at the time of the invention in view of Fischler and Pederson, our rationale is sufficiently distinct from the examiner's rationale that we believe due process requires a new ground of rejection pursuant to 37 CFR § 1.196(b) (Rule 196(b)).

C. Claims 13 and 14 would not have been obvious on this record

10. Claim 13 requires the detecting means to comprise

first comparator means for comparing the data pulse delayed by said variable delay means to said window pulse, second comparator means for comparing the DRDSS-delayed data pulse to said window pulse, and third comparator means for comparing said first and second comparator means to produce an error indication if the comparison of said first comparator means differs from the comparison of said second comparator means.

11. The examiner builds on the premise that Pederson teaches a first comparator 18. (Paper 9 at 5.) Appellant concedes that the error detector 32 of diagnostic circuitry 18 (Fig. 2) corresponds to the first comparator means. (Paper 14 at 27.) According to the final rejection (Paper 9 at 5), the combination of Pederson

would require two additional comparators. One would compare the anticipator's delayed data pulse to the window in order to account for zonal variations. An error would occur if the two comparisons were different, so a third comparator would be needed in order to detect errors.

The examiner does not explain how the references, as understood by one having ordinary skill, would have lead to this conclusion. The answer does not defend the rationale in the final rejection, but explains that "additional comparators presented in the claim comprise duplicate components [and] that duplicating parts for a multiplied effect is not the type of innovation for which a patent monopoly is to be granted. See St. Regis Paper Co. v.

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Bemis Co., Inc., 193 USPQ 8, 11." (Paper 15 at 6.) In St. Regis Paper, the Court of Appeals for the Seventh Circuit held that redundancy of layers to confer strength was obvious in the paper bag art. 549 F.2d 833, 838-39, 193 USPQ 8, 11 (7th Cir. 1977). In the present case, the comparators are not redundant since each has distinct inputs. The examiner's rationale for the rejection does not comport with the language of the claim so we reverse this rejection.

12. Claim 14 depends from, and thus incorporates the limitations of, claim 13. Consequently, we reverse the rejection of claim 14 as well.

DECISION

We affirm the rejection of claims 12 and 15-17 under section 103 in view of Pederson and Fischler, albeit under a significantly different rationale. Hence, the affirmance is a new ground of rejection pursuant to Rule 1.196(b).

We reverse the rejection of claims 13 and 14 under section 103 in view of Pederson and Fischler.

Any request for reconsideration or modification of this decision by the Board of Patent Appeals and Interferences based upon the same record must be filed within one month from the date of this decision. 37 CFR § 1.197.

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Alternatively, Appellant may elect to prosecute the new grounds of rejection entered pursuant to 35 CFR § 1.196(b) by amendment or showing of facts, or both, not previously of record. 37 CFR § 1.196(b)(1). We set a shortened statutory period for making a response under this provision to expire two months from the date of this decision.

This decision is not final for purposes of review under 35 U.S.C. §§ 141 and 145. 37 CFR § 1.196(b).

Any extension of the period for taking subsequent action in this appeal will be governed by 37 CFR § 1.136(b).

AFFIRMED-IN-PART, 37 CFR § 1.196(b)

JAMES D. THOMAS)	
Administrative Patent Judge)	
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KENNETH W. HAIRSTON)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS
)	AND
)	INTERFERENCES
)	
)	
)	
RICHARD TORCZON)	
Administrative Patent Judge)	

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CURTIS, MORRIS & SAFFORD
c/o William S. Frommer
530 Fifth Avenue
New York, New York 10036